HIGH SCHOOL AND UNIVERSITY
MATRICULATION EXAMINATIONS BOARD.

DEPARTMENTAL EXAMINATIONS, 1926

GEOMETRY 1.

Time—Three hours.

Values.

2 **1.** (*a*) The complement of the angle m is 40°. What is the magnitude of the angle m?

4 (*b*) Prove that the lines bisecting a pair of adjacent supplementary angles form a right angle.

4 (*c*) Having given the lengths of the four sides and of one diagonal, construct the quadrilateral.

2 **2.** (*a*) Define the term "isosceles triangle".

10 (*b*) The angles at the base of an isosceles triangle are equal to one another. I — 2.

4 (*c*) Prove that the opposite angles of a rhombus are equal to one another.

10 **3.** (*a*) To draw a perpendicular to a given straight line of unlimited length from a given point not in the line. I — 12.

6 (*b*) To construct an isosceles triangle having given the angle at the vertex and the altitude.

8 **4.** The perpendicular is the shortest line that can be drawn from a given point to a given straight line; and a line nearer to the perpendicular is less than one more remote. I — 13 Cor.

OR

To describe a parallelogram equal to a given triangle, and having an angle equal to a given angle. II — 11.

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Values.

10 **5.** (*a*) If a straight line falling on two other straight lines make (1) the alternate angles equal to one another; or (2) the two interior angles on the same side together equal to two right angles, then the two straight lines are parallel. II — 3.

5 (*b*) Let *AB* be a given straight line, *C* a given angle, and *D* a given point not in *AB*. Draw from *D* a straight line to make with the line *AB* an angle equal to angle *C*.

10 **6.** (*a*) Triangles, equal in area, on the same base, or on equal bases that are in the same straight line, and on the same side of the base line, are between the same parallels. (II — 8.)

2 (*b*) State the converse.

6 **7.** (*a*) *ABCD* is a quadrilateral having *BC* parallel to *AD*, and *E* is the middle point of *DC*. Show that the triangle *AEB* is half the quadrilateral.

6 (*b*) Show that any straight line through the intersection of the diagonals of a parallelogram divides the parallelogram into two equal parts.

7 **8.** Two triangles of equal area lie on the opposite sides of the same base. Prove that the straight line joining their vertices is bisected by the base.

4 **9.** Find the magnitude of each interior angle of a regular eight-sided figure.

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